Please replace the paragraph beginning at page 1, line 1 with the following rewritten paragraph:

--The invention relates to a method of acquiring a three-dimensional image data set of a periodically moving organ of the body of a patient by means of an X-ray device in which projection data sets are acquired by the X-ray device simultaneously with a motion signal related to the periodic motion of the organ. The present invention also relates to an X-ray device including an X-ray source and an X-ray detector for acquiring projection data sets from different X-ray positions and enabling the formation of a three-dimensional image data set of a moving organ of the body of a patient from the projection data sets, and a mechanism for measuring a motion signal related to the periodic motion of the organ which is acquired simultaneously with the acquisition of projection data sets.--

Please replace the paragraph beginning at page 2, line 5 with the following rewritten paragraph:

--U.S. Patent No. 5,383,231 discloses a computed tomography (CT) system in which the projection data sets are acquired during a helical scanning motion of the X-ray source and the X-ray detector about the patient. At the same time, and independently therefrom, an electrocardiogram of the patient is recorded, the

data of said electrocardiogram being used during the formation of the CT images and a three-dimensional image data set from the projection data sets so as to take into account the displacement of the patient table during the acquisition of the projection data sets and to evaluate exclusively the projection data sets acquired during a given phase of the cardiac motion. In order to realize a three-dimensional image data set therein, however, it is first necessary to calculate CT image data sets from the projection data sets; a three-dimensional image data set can then be formed from the three-dimensional image set by means of interpolation algorithms. Furthermore, no direct and immediate link is provided between the acquisition of the electrocardiogram and the acquisition of the projection data sets by means of the X-ray device, so that a series of projection data sets which have been acquired during the wrong cardiac motion phase are not evaluated.--

Please replace the paragraph beginning at page 2, line 25 with the following rewritten paragraph:

--This object is achieved by means of a method and an X-ray device in which simultaneously with detection of the motion signal, the X-ray device is moved to different X-ray positions situated in a common plane and a projection data set is acquired when the X-ray device is in each X-ray position. The movement of

the X-ray device and acquisition of the projection data sets by the X-ray device are controlled by means of the motion signal such that a projection data set during a low-motion phase of the organ is acquired when the X-ray device is in each X-ray position. The projection data sets acquired during the low-motion phases are used for the formation of the three-dimensional image data set.--

D4 CONTD.

Please replace the paragraph beginning at page 3, line 13 with the following rewritten paragraph:

--Various attractive versions of the method according to the invention and various attractive embodiments of the X-ray device according to the invention are disclosed below.--

D5

Please replace the paragraph beginning at page 4, line 16 with the following rewritten paragraph:

--Advantageous embodiments of the means for measuring the motion signal are disclosed below.--

D6

IN THE CLAIMS:

Please amend claims 1-10, 12-17 and add new claims 18-21 as follows (see the attachment for details of the amendments):

1. (Thrice amended) A method for acquiring a three-dimensional image data set of a moving organ of a body of a patient, comprising the steps of:

defining a plurality of different positions of an X-ray device including an X-ray source and an X-ray detector required to obtained the three-dimensional image data set, the X-ray positions being situated in a common plane,

D1

detecting a motion signal related to the periodic motion of the organ and including a low-motion phase,

simultaneously with detection of the motion signal, moving the X-ray device to the X-ray positions and acquiring a plurality of projection data sets required for the formation of the three-dimensional image data set, each of the projection data sets being acquired when the X-ray device is in a respective one of the X-ray positions,

controlling the movement of the X-ray device and the acquisition of the projection data sets by the X-ray device by means of the motion signal such that a projection data set during a low-motion phase of the organ required for the formation of the three-dimensional image data set is acquired when the X-ray device is in each X-ray position, and

using the projection data sets acquired during the low-motion phases for the formation of the three-dimensional image data set.

2. . (Twice Amended) The method as claimed in claim 1, wherein only the projection data sets acquired during the same motion phases are selected and used.

3. (Twice Amended) The method as claimed in claim 1, further comprising:

successively moving the X-ray device to all of the X-ray positions in an X-ray cycle,

successively completing a plurality of X-ray cycles, and

controlling the X-ray device by means of the motion signal such that each X-ray cycle commences in a different phase of motion of the organ.

4. (Twice Amended) The method as claimed in claim 1, wherein the X-ray device is controlled by means of the motion signal such that projection data sets are acquired only during low-motion phases of the organ.

5. (Twice Amended) The method as claimed in claim 1, wherein the X-ray device is controlled by means of the motion signal such that the X-ray source is switched on to acquire projection data sets exclusively during low-motion phases of the organ.

6. (Twice Amended) The method as claimed in claim 1, wherein a respiratory motion signal dependent on the patient's respiration is acquired as a motion signal.

7. (Twice Amended) The method as claimed in claim 1, wherein a cardiac motion signal dependent on the motion of the heart is acquired as the motion signal.

D7 cont'd.

8. (Twice Amended) The method as claimed in claim 7, wherein in addition to the cardiac motion signal, a respiratory motion signal dependent on respiratory motion is acquired, further comprising using the respiratory motion signal to ensure that only projection data sets acquired during the same respiratory motion phases are used to form the three-dimensional image data set.

9. (Twice Amended) The method as claimed in claim 8, wherein the respiratory motion signal is used to correct, during the formation of the three-dimensional image data set, the projection data sets acquired in different respiratory motion phases and the shifts in position of the organ resulting therefrom.

10. (Twice Amended) The method as claimed in claim 6, further comprising informing the patient that a desired respiratory motion phase has been reached based on the respiratory motion signal.

12. (Thrice Amended) An X-ray device comprising:

an X-ray source and an X-ray detector for acquiring a plurality of projection data sets from different X-ray positions and enabling the formation of a three-dimensional image data set of a moving organ of the body of a patient from the projection data sets, the X-ray positions being situated in a common plane,

means for measuring a motion signal related to the periodic motion of the organ simultaneously with the acquisition of projection data sets, the motion signal including a low-motion phase,

a processing and control unit for controlling movement of the X-ray device to the different X-ray positions and acquisition of projection data sets by the X-ray device by means of the measured motion signal and forming the three-dimensional image data set such that the projection data sets required for the formation of the three-dimensional image data set are acquired from the different X-ray positions, each of the projection data sets being acquired when the X-ray device is in a respective one

of the X-ray positions and during a low-motion phase of the organ, and

the projection data sets acquired during the low-motion phases being used exclusively for the formation of the three-dimensional image data set.

13. (Twice Amended) The X-ray device as claimed in claim 12, wherein the means for measuring the motion signal are arranged to measure a cardiac motion signal dependent on cardiac motion.

14. (Twice Amended) The X-ray device as claimed in claim 13, wherein the means for measuring the cardiac motion signal include one of an electrocardiography device and a pulse oxymetry device.

15. (Twice Amended) The X-ray device as claimed in claim 12, wherein the means for measuring the motion signal are arranged to measure a respiratory motion signal dependent on respiratory motion.

16. (Twice Amended) The X-ray device as claimed in claim 15, further comprising a signaling device for informing the patient that a desired respiratory motion phase has been reached.